NOTES ON THE CALIFORNIA CONDOR

COLLECTED ON LOS PADRES NATIONAL FOREST, CALIFORNIA

Compiled by

Cyril S. Robinson, Associate Forester

U. S. Forest Service

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SISQUOC FALLS SANCTUARY

LOS PADRES NATIONAL FOREST

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Los Padres National Forest contains the only large colonies of the California Condor so far as is known. While the range of flight of these birds extends far beyond the Forest boundaries, roosting and mating elsewhere in recent years had been confined to a few individuals or pairs.

This paper is an attempt to record the reports and observations which may be of importance for future use and to place in order the events that have occurred from 1933 to 1938. The records from 1909 to 1932 have been scanned also, but beyond an occasional remark there is little of scientific value regarding the condor. By piecing together all of the scattered information a better line of reasoning can be obtained which, it is hoped, will lead to more effective plans for the protection of this bird.

The 2,016,000 acres embraced in Los Padres National Forest have been under protection since the close of the last century. The Pine Mountain and Zaca Lake Forest Reserve was created in 1898 and the Santa Inez Reserve in 1899. In 1903 these two were combined into the Santa Barbara Reserve. In 1910 the San Luis Obispo National Forest was included within the boundaries of the Santa Barbara. In 1919 the Monterey National Forest was proclaimed a detached ranger district, making the Santa Barbara the largest national forest in California. The name was changed to Los Padres in December 1936. Four counties, Monterey, San Luis Obispo, Santa Barbara and Ventura have a considerable percent of their area inside the national forest while two, Kern and Los Angeles counties, have only a small area.

Los Padres is a protection type of national forest, established for the primary purpose of watershed preservation. Its physical characteristics are typical of the mountain areas of southern California. Approximately 75% is exceedingly rough and inaccessible. The drainage is a series of sharply cut gulches feeding into broad major stream courses. For the most part it is densely covered with chaparral and very difficult to travel except by road or trail unless in the potreros or open woodland and grass lands. Elevations range from sea level to 8000 feet on Mt. Pinos in Ventura County. The principal life zones in order of abundance are: Upper Sonoran; Transition (the coastal and lower border); and the Lower (valley) Sonoran.

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According to the earliest records on file in the office of Los Padres Forest, condors have been seen consistently but in varying numbers. Old-time residents from Monterey to Ventura have told of seeing birds along the coast. Cattlemen riding the Sisquoc and Sespe Rivers knew the bird, and the condor has been a familiar sight to miners and trappers of this part of the State in the past thirty years. Homesteaders in the Cuyama Valley speak of the condors as being numerous in the 1880's and 90's. Assistant Regional Forester W. I. Hutchinson, of the Forest Service, saw five of them in the yard of the Elwood Cooper ranch 13 miles west of Santa Barbara in 1903. Colonies of condors once lived as far north as the Salinas Valley and at Pfeiffer's Point below Monterey on the coast. Mr. Edward H. Davis of Mesa Grande, San Diego County, in commenting on a news item about condors released by the Forest Service, wrote that he was deeply interested in these birds as there were many on the Warner Ranch about sixty years ago. He stated that he has a cermonial dance skirt of condor plumes made by the Indians.

Today, although their range of flight is the same as when the Americans came to California, the circle of their existence or habitat has become smaller and smaller until Los Padres National Forest is now the center of their operations. There is hardly any limit to their flight but there are apparently some very definite limiting factors which govern their life. The fact that the California Condor has decreased in number is beyond question. Former colonies have died out and they are no longer numerous in the semi-arid mountainous country of the State. It is obvious that the birds have withdrawn to the most favored breeding grounds where only the nucleus of former flocks is to be found. These chosen areas offer certain conditions essential to their existence, which may be summarized briefly as environmental factors and, particularly, the food supply.

REPORTS AND RECORDS 1933-1936

The first reports, while varying in kind, were consistent in one main item--the lack of knowledge of the principal bird colonies. Roosts, that, according to local gossip, had formerly been frequently used were found to be vacant. The range of flight has apparently remained fairly constant, but only a few birds are now seen in the places that we were told many had been before.

During the year 1933, field men familiar with the birds made some attempt to determine the resident numbers within Los Padres boundary. They had very little information with which to work, but picked up scattering notes on appearance in San Luis Obispo, Santa Barbara and Ventura Counties. The files contained only the briefest notations and annual reports only mentioned the condor as being present. No satisfactory figures on numbers could be found for the period 1909 to 1932, when about 20 were reported around Mission Pine Basin and at the Montgomery Potrero near the Cuyama Valley.

In 1934 attention was focussed on the upper Sisquoc River Drainage, where it was thought a colony was established around Mission Pine Mountain or the Hurricane Deck area. It was also known that condors were often seen in the Cuyama Valley and also near Soda Lake (Carrizo Plain). Mr. Bertram Snedden of the Snedden Ranch and Cattle Company at that time told of their appearance occasionally at Salisbury and Santa Barbara Potreros and said that he and his riders had watched them feeding on dead cattle. Mr. Snedden also spoke of their appearance around San Emigdio Mt. and at Tejon Pass, but doubted if there were any left.

Mr. Robert E. Easton of the Sisquoc Ranch Company, member of the Audubon Society and a keen observer, told of photographs of the bird he had had taken at Montgomery Potrero. Two old horses had been killed and while at first the birds refused to come down, they did so eventually and some splendid pictures were obtained. Mr. Eugene Johnson, stockman in the Cuyama Valley, assisted Mr. Easton in the preparations and was also able to get a few good pictures. Mr. Easton has always been very interested in the condors and has been most helpful in reporting facts concerning possible colonies within the Sisquoc River area.

At the end of 1934 Los Padres officers estimated the numbers of condors on the Forest to be about 60 birds and were in a position to plan more intensive observation for the following year. It was difficult to get information as the Forest officers were widely scattered. However, in 1935, the concentration points--two main roosts or gathering grounds, were located. The largest was near the Sisquoc Falls in Santa Barbara County; the other in the Whiteacre Peak-Hopper Mountain Creek area in Ventura County. At the close of the year the numbers of California Condor, within the counties of Santa Barbara and Ventura, were placed at between 50 and 60.

The Whiteacre Peak area was at first disappointing, but by June 1, 1936 it was learned that the Hopper Creek section, three miles south, contained another colony, though not as large as that at Sisquoc Falls. Reports at the close of 1936 showed a total of 45 birds as follows: 30 at Sisquoc Falls, 13 at or near Whiteacre Peak, and a report of two near Huffs Hole in San Luis Obispo County, 35 miles north. A new estimate showed a maximum of 50 condors for the entire area within Los Padres National Forest, a decrease from previous estimates.

PLANS

The year 1936 afforded the first opportunity to make some really worthwhile studies and plans for the future. Arrangements were made to place a competent man at each concentration point for a 30-day period. These men were members of the summer fire patrol force, normally on duty June 1, but to go on a month earlier. Their instructions were simple -- to record carefully from daylight to dark the number of condors seen, together with the date, time and place. By this method it was felt an accurate count could be obtained. If observer A on May 10 at 3:00 p.m. counted 18 condors in the air, and observer B, 25 miles distant, counted 15 birds at the same hour, a total of 33 was assured. Supplementary

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notes on direction of flight, characteristic markings that indicated male or female, and similar observations were also recorded.

Unfortunately money for such a project again was not available so it was necessary to plan how this essential information could be obtained by using regular men during the summer months. About that time Mr. John Baker, Executive Secretary of the National Association of Audubon Societies, who was particularly interested in the California Condor, called at the Supervisor's office in April. The problem was discussed with him and Mr. Baker was able to obtain by contributions from a sufficient number of members in southern California enough money to pay the wages of our observers. The two men, Jake Johns and Walter Maples, were placed accordingly, Johns at Whiteacre Peak and Maples at the Sisquoc Falls. Field headquarters were located nearby; supplies were packed in; and both men were on the job May 5, 1936. The following memorandum for files of April 17, 1936, written by Mr. Nash-Boulden, Forest Supervisor, gives a good outline of the situation.

"Mr. John H. Baker, Executive Director, National Association of Audubon Societies, visited this office April 13 and spent the 14th and 15th in the field with Supervisor Nash-Boulden and Associate Forester Robinson.

"After going over our maps showing possible range covered, probable nesting places, and colonies of birds, etc., field trips were planned. The main objectives of the trips were to acquaint Mr. Baker with the Forest area and habitat of the California Condor; and to give Mr. Baker a view of the birds and where they can usually be found; also to discuss the effect of disturbance by people or roads. Many other matters concerning their life habits, numbers, feeding, bathing, nesting, etc., were also taken up.

"The first trip was from Santa Barbara to the Salisbury Potrero on the Cuyama District. We were able to sketch out on the ground the present impossibility of affording adequate protection to the Upper Sisquoc River watershed in case of fire. Difficulties in alternate routes for the road were discussed and the necessity of major-divide roads pointed out. The matter of possible disturbance of the birds by such a road and problems of additional closure to public use, was also discussed.

"At this time Supervisor Nash-Boulden agreed with Mr. Baker that the construction of the Hurricane Deck Road would be pushed on only so as to connect with a good spring - a possible distance of about 1½ miles. Further road construction on into the Sisquoc River was to be held up pending a thorough survey by the U. S. Forest Service of the conditions around the Upper Sisquoc River with special reference to possible nesting and bathing places of the California Condor at the Sisquoc Falls. This survey was, of course, dependent upon funds. Mr. Baker suggested that he might be able to raise the money and he expects to do so. No condors were seen on this day.

"The second trip was to the Whiteacre Peak country and we were able to see several condors in the air in the vicinity of the peak and Hopper Mountain Creek. Two mature birds were observed with field glasses as well as one young bird. The young bird was a darker color and white underwing feathers were not distinct, nor was there the characteristic orange-colored wattling. The feet were a dark gray as opposed to the yellow-colored feet of the mature birds. Three more birds were seen far off, making a total of six seen April 15."

It was in May 1936 that Mr. J. R. Pemberton of Los Angeles, naturalist and member of the Audubon Society and Cooper Ornithological Club, offered assistance in securing motion pictures. This was readily agreed to and Mr. Pemberton visited the colony at Sisquoc Falls several times. These reels of film are a magnificent contribution and a debt is owed to Mr. Pemberton for his time and expense so readily given. They are unquestionably the finest photographs ever made of the condor and it is doubtful if the same opportunities will be available again.

The type of country in the vicinity of Sisquoc Falls is typical of southern coast mountains. The falls are fed by a small stream flowing from Mission Pine Mountain to the Sisquoc River. The entire country is quite rough in all the major canyons and, with the exception of a few trails, is almost impassable due to the dense brushfields. At one time moderately timbered on the tops of the divides and northern aspects, it now contains only a few scattered small stands of mature Ponderosa Pine and Big Cone Spruce. Fire has swept the country in the past and the dead and decadent trees are mute evidence of the more widely forested area that once existed. The falls are magnificent in spring - a sheer drop of 300 feet into a lovely small canyon - later as the waterflow lessens in summer, only a small stream remains to trickle over the brim.

In July 1936 Mr. Pemberton, Guard Maples and the writer set up camp in a small grassland type about one-half mile upstream from the falls. It was Mr. Pemberton's plan to remain several days, if necessary, in order to obtain photographs of the condors in their activities - in the air, roosting and bathing. Both Maples and the writer had previously scouted the area and had seen at close range several condors roosting or in flight.

From the start Maples had reported a fairly consistent number of condors in the vicinity of the Sisquoc Falls and most of the observations were centered in that locality. His notes show a maximum of 32 birds on May 21, the largest number yet reported. Johns at Whiteacre Peak saw but few during the first ten-day period and reported a total of only nine seen in one day by May 20. Later, however, the numbers increased and a total of 13 was the maximum number believed to be in this section of the country.

It is the opinion of Forest officers that the birds do not remain at the Sisquoc Falls yearlong. Part of the winter these are in the Hopper Mountain Creek area where temperatures are more favorable, returning to the Falls later in the spring. This, however, is conjecture.

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DESCRIPTION (Color-Plumage-Size)

The following description is taken from "Birds of the Pacific States", by Ralph Hoffman, page 61.

"California Condor, Gymnogyps californianus. 4-4½ feet, wingspread 8½-9½ feet. Adult plumage wholly black, except a white lining under the wings close to the shoulder; bare neck and head yellowish or orange. Bill yellowish; feet light flesh colored. Immature head, neck and bill dusky; no white under the wings. Distribution - California. Rare in the mountains of southern California, chiefly in Santa Barbara and Ventura counties, locally north to Monterey County, east to Kern County and south to Los Angeles County. Nest, egg laid on bare ground in a cave or hole in cliffs. Egg one, white to bluish white."

There is no reference in either Hoffman or in William Leon Dawson's "Birds of California" to the distinctive U-shaped patch of white feathers on the wing shoulder. This is quite noticeable when the bird is on the ground or perched. There are also two thin bars of small white feathers on the wing tips that can be seen when closed. Possibly these two markings are rare, but they certainly are present in some cases. The best estimate of maximum wingspread we are able to make is nine feet, with an average of 8½ feet.

The condor, like the turkey, often rests with his breastbone against the perch or ground. This has been seen often when the birds are gorged and sink down on the ledge or perch like a barnyard fowl basking in the sun, or a Virginia wild turkey roosting at night. In several of the old birds a patch of skin shows at the point of the breastbone where the feathers have been worn away. This from a distance may be easily mistaken for a tuft of reddish-colored feathers.

The following is quoted from my notes June 23, 1936 when Supervisor Nash-Boulden and the writer were at the Falls.

"At 9:25 a.m. Mr. Pemberton joined us and said that there was one bird coming in. We watched this bird light on the rocky ledge about 100 yards from a dead horse. I believed this bird to be a female without a mate as she had been seen alone constantly around here for the last three days. With the aid of a strong glass, I was able to observe the bird easily.

"The head appeared to be quite greenish in color, the eye black and full giving the appearance of being rather prominent. The neck similar to that of a domestic turkey which has the S shape when the bird is perched. The color of the head from this distance showed a distinct green tinge with a line of pale purple along the crest of the head in the form of a wattle. The ruff of stiff black feathers was quite noticeable at the base of the neck. The legs and feet were a color that positively blended with the lime-splashed rock and could be designated as a gray-white. On the point of the shoulder with the wing folded was a fine U-shaped white line of feathers almost like an epaulet.

The beak was quite long, slate colored and had a dull sheen; jaw muscles were very prominent. This hen condor remained perched around the rock from 9:15 to 10:40 a.m. She repeatedly plumed her feathers and occasionally stretched the legs and wings to full length.

"At 10:40, four other condors appeared and flew down quite close to the female. She ruffled up her neck feathers, opened her wings like a domestic hen in defiance and then flew off down the canyon.

"The appearance of this female bird was more dull in color compared to the male, and I would describe the color as black to real dull brown. I judged this female condor to be about three to five years old as the older and more mature hens have a decidely brighter head coloring; the legs and feet are often a light yellow.

"Condors are very curious and in 1938 when near Hopper Mountain, I have spread-eagled myself out on the firebreak that runs along the main ridge, several times in order to bring them closer. In this way one can often check the size and color and so try to determine the age. The familiar bright orange colored head and neck of the mature male is not nearly so vivid on the female. The neck ruff and the white under-wing converts are not so prominent in the female, nor are the U-shaped patches always seen on the shoulder of the female birds.

"Maples and the writer picked up several wing feathers below the Falls - the largest measuring 23½ inches in length. The quill was unusually large, 6½ inches from tip to where the feathers commence and 3/8 inch in diameter. According to tales, these quills were often used as dust pouches by miners in the early days, a surmise that is quite feasible."

FEEDING

It must be remembered that the comparatively rapid reduction in the large numbers of livestock that formerly grazed this part of California has played a very important part in curtailing the supply of food. The vast open range of the San Joaquin and Sacramento valleys provided ample food for hundreds of condors in the last century. Civilization and modern methods of livestock production have seriously altered the picture. The vast flocks and herds have dwindled and the cost per animal has increased so that the loss of even one sheep or cow is important.

Wanting in 1936 to get some pictures of the birds feeding, and believing that any carcass thrown down on a fairly open spot would secure results, Mr. Pemberton purchased an old horse which was killed and left on a hillside about one-fourth mile away from the Sisquoc Falls. Mr. Pemberton installed a blind and Supervisor Nash-Boulden and the writer later visited him for several days hoping for a chance to get pictures.

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It is noticeable that ravens often precede the condors and may be the scouts that are later seen by the big birds. They fly considerably lower than either buzzard or condor and could probably discover dead animals more quickly.

FOOD

The matter of food and how often it is required is at present only a conjecture. The writer believes they can go three to five days without a meal of any size, but water seems a daily necessity.

While at Soda Lake in May 1936, the herder of a band of sheep said that condors were fairly frequent visitors in 1934 and 1935. That they would gorge themselves heavily and have difficulty in getting off the ground, also that they would not return for two or three days, and sometimes nearly a week. Of course, he was not sure that they were the same birds.

Supervisor Nash-Boulden reported the case of a pet condor owned by a Mr. Wells, rancher of Carrizo Plains, several years ago. The young bird was taken from a nest and raised by Mr. Wells. It became very tame and would follow him when on horseback, circling above him repeatedly. The bird was fed daily, but often gorged itself and would refuse food for twenty-four hours. Mr. Wells stated that this condor would often disgorge after drinking water.

Most stockmen in Cuyama Valley believe that the condor will not eat fresh meat, but this is not always the case. At Soda Lake the writer saw buzzards and a condor arrive and consume a sheep carcass, an hour after death.

In August 1935 the writer, through field glasses, watched two horses, a pair of condors, a Golden Eagle, three buzzards, and a pair of ravens quarreling over the carcass of a dog on State Highway #166 from Santa Maria to Maricopa. The eagle had evidently taken it from the highway to a small mound and there eaten his fill. The condors remained nearby, made no attempt to dispute ownership, but moved in at once after the eagle had left. Buzzards tried to close in, but the condors frightened them away, hopping toward them with beak open and wings lifted. When the condors left the buzzards crowded in and there was another battle, this time between the buzzards and the ravens.

Mr. Eugene Johnson stated that the condors came down to a freshly killed sheep carcass in 1938 when Mr. Pemberton prepared to get pictures of the birds feeding. The pelt had been skinned back along the belly, but the walls of the abdomen were not cut. Another sheep was ripped open with entrails exposed. In both cases the condors tore the flesh quite easily and actually cracked the rib bones when necessary.

The writer well remembers watching a large condor feasting on a deer carcass along the Sisquoc River in October 1936. The big bird would place one foot on the backbone, seige a piece of hide and with an upward wrench tear off a large chunk. This same procedure takes place when several are feeding on a large body. They will tear away hide and flesh, then gulp down as large a chunk as possible.

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A badly wounded doe, some hunter had mistaken for a buck, had been recently killed and left in a fairly open place near Big Pine Mountain in September 1936. The condors circled above for about ten minutes, then settled to the ground. Both walked up to the body and one deliberately pecked at its side as if to test its fitness for eating. Apparently this time neither bird was very hungry for, after walking around and on it, both flew away. From all accounts both fresh and decomposed bodies may be eaten, but it is natural that carrion forms the bulk of the food.

BATHING

While at the Falls one day in 1936, Supervisor Nash-Boulden and the writer took up a location well hidden near the brink of the Falls, hoping to get a picture of the condors drinking. Unfortunately some rocks were dislodged in the crawl into the canyon and frightened away seven or eight birds already at the pool before our arrival. It was discovered later that Mr. Pemberton had hidden himself nearby and had taken a few pictures before the birds were scared away. At this time a small pool above the Falls obviously used for drinking was examined. A shelving beach afforded an unusually fine spot for the birds to wade out from the shore. Maples and the writer had measured the footprints several times in the moist sand here in 1936 and were surprised to find one with the center toe six and three-quarters inches long, the right and left five and one-half and four and three-quarters respectively.

The birds came regularly to this pool each day, usually between 1:30 and 3:00 p.m. and would splash like gigantic sparrows, dipping their heads under, but rarely extending the full spread of their wings while in the water. Afterwards they would sit on the rocky ledge nearby, preening their feathers until fully dry. The wings are often semi-extended after such activity, as if hanging them out to dry.

At this time it was noted that condors are quite gregarious. They are certainly not pugnacious with each other and show little concern when roosting, beyond being sure of plenty of room on the perch. They chase buzzards away from food, but do not seem to be very vicious.

Later another most suitable spot was discovered on the Sisquoc River - a series of shallow pools set in a wider ledge of sandstone and forming a part of the riverbed, with evidence of bathing.

All notes on drinking seem to agree that they take water once daily near midday and more often in warm weather. Maples observed, "They drink like a turkey or chicken, raising the head for each swallow."

NATURAL ENEMIES

Coyotes, bobcats, and cougars may kill condors when they find them at a fresh kill. These predators are known to return to their kills and condor feathers have been found near such locations. It would be comparatively easy to attack the condors, when gorged to such an extent flight from the ground is difficult.

Storms may also be a possible factor in accidental death. This has been overlooked, as shown by the following quite accurate report in the Los Angeles Times, October 25, 1936. This gives an account of finding two dead condors by Forest Officers.

"The mysterious deaths of two of a colony of three American condors in Peach Tree Flat region of Los Padres National Forest was cleared today after a post mortem conducted by Ornithologist Edgmont Z. Rett of the Museum of Natural History in Mission Canyon.

"The loss of two of the small remaining colony of the largest birds that fly over America, is definitely laid at the door of a hail-storm.

"The mountain tragedy was discovered by Sam Kosub, Forest Service foreman, at Sunset Valley Camp, when he was sent into the Peach Tree country with several CCC boys to look for lightning fires. They came across the carcass of a horse and nearby a dead condor, while a second bird lay some distance away. A third condor, apparently badly injured, flew away. Hail still lay piled in surrounding gullies to a depth of from two to three feet, some of the hailstones as large as walnuts.

"Post mortem by Mr. Rett showed that the backs of both birds were broken. Foresters believe the condors came to feed on the carcass of the horse. In all probability the birds were stunned by the terrific force of hail when in flight and fell to the ground from a considerable height."

Both of these birds were mounted by Mr. Rett and preserved - one is at the Museum and the other at the U. S. Forest Service headquarters in the Federal Building, Santa Barbara, California.

Fire is certainly a real danger if of major size, and asphyxiation from clouds of smoke might easily be fatal, especially where it invaded the normal lanes of flight. The physiological changes due to severe fires could so seriously affect a chosen environment such as nesting and roosting places as to cause the birds to abandon favored locations.

MAN-CAUSED LOSSES

Old residents of Maricopa have told the writer that about 1918 the condors were often seen on the plains east of town and farther north around McKittrick where sheep grazed. They also spoke of several birds that had lit near large oil pools, believing them to be water, and had become fouled with oil and later picked up dead. In recent years the pools have dried up, or have been diverted into tanks, reducing this hazard. However, no condors have been seen there in recent years, except in flight.

Shooting undoubtedly is responsible for the highest man-caused loss. Undoubtedly, stupid people have killed many of the birds in the past. Cowboys from some of the large cattle ranches have told of their

predecessors who shot the birds "just for target practice". Miners, in the early days, probably used the large quills to carry gold dust. Deer hunters in the past have killed them and may still do so, but this is at least considerably reduced. There are, however, very many opportunities for promiscuous shooting, as the condor in the air offers an unusual and perhaps an easy target. Recently a "sportsman" said he thought the bird was an eagle and promptly shot it, in spite of the fact that eagles are fully protected by State laws.

Poisoning is possible if the poisoned baits were also eaten. Strychnine after being in a poisoned carcass for a few days loses its lethal quality. However, very little is known about this and of the actual losses that could be attributed to this cause. Condors can certainly regurgitate as easily as buzzards and thus protect themselves, so we feel that losses from poison can be greatly minimized. Had secondary poisoning resulted from squirrel control work, the condors would have been eliminated many years ago.

NESTING AND MATING

The writer once saw a large male bird strutting around displaying his wings, similar to the action of domestic tom turkeys. This was near Big Pine Lookout in September 1936, on a ledge of rock about 1/4 mile away. The female remained quietly sitting while the male strutted in semi-circles in front of her. He would perform exactly as a wild or domestic turkey-- dragging the wings, etc. It was too far away to see closely even with field glasses, but I could note the erect carriage, with the head held first high and then lowered to the ground.

Mr. Norman Arundell, who has watched the birds near Hopper Mountain for years, told me that he had seen actual mating on the ground.

Forest officers were very anxious to locate a nest, and both Maples and Johns were asked to watch carefully. Sisquoc Falls, with its sheer cliff walls 300 feet high, had several holes believed to have been used at some time. However, they were unoccupied that year and while the birds returned daily to the rocky ledges and points that jutted out from the sheer walls, to roost, it was impossible to find any nest. The location was ideal and may have been used in the past, but certainly not in 1935 or 1936.

It would seem that the California condor builds its nest normally with certain things in mind -- safety from predators, as evidenced by inaccessibility except from the air; adaptability for an even temperature and long period of occupation as shown by the northern aspect which would insure indirect sunlight.

Two nests examined near Whiteacre Peak in 1936, but unused, showed similar characteristic locations. A cave is usually about 6 to 10 feet in depth and width, with sufficient height to permit the birds to stand up. An alighting platform is, of course, necessary. The nest itself was merely a sandy hollow- - no twigs or other building material at all.

According to statements, the young are fed by parent birds disgorging on the ground or by pumping from the crop directly into the mouth of the young bird. No Forest Service man, however, has actually

witnessed this, but two reliable persons have stated they watched the parent birds disgorge and the fledgling fed that way.

PERCHING OR ROOSTING

When alighting on tree tops, the condor seems clumsy compared with smaller birds. Before settling down they "balance" repeatedly with the aid of their wings if the perch is small. Turning around in such circumstances is quite a serious affair - the bird literally uses everything -- beak, claws, wing and tail.

Once settled, however, there is nothing so majestic and inspiring. The shoulders seem hunched high; the whole carriage expresses an old-world feeling; it always seems as if one has stepped back into a former geologic era.

Roosts that are in constant use seem to be located with a view to favorable air currents. Those found used habitually, were the dead-topped pines and spruces at the head of "draws" or gulches tributary to a major drainage where up-current winds would prevail. Rocky points on prominent ridges and crests, even if exposed to prevailing winds, seem to be in constant use. Lookouts report this type of roost as stopping places on the regular lanes of flight along the Big Pine Mountain Range.

The behavior of the birds when at the Sisquoc Falls is interesting. Arriving quite late in the evening when there was barely sufficient light to see the perch, or jutting rock, they would remain there long after daylight in the morning. It was a common sight to find these late arrivals still on the rocky points at 7:00 a.m., and during the month of May, they often actually waited, it seemed, until the warm sunlight worked down into the canyon. A large male bird daily performed a series of stretching motions with wing and leg as if warming up for the flight. These activities were usually the signal to prepare to leave and the great bird would literally dive off into space shortly afterward.

The walk of the condor is rather similar to the domestic goose, and quite ungainly, the toeing-in habit quite noticeable at times, and a sort of rolling gait. However, they can hop along fairly well on smooth ground, especially when approaching a carcass. When in a hurry they will spread the wings, but certainly cannot walk as fast as the domestic or wild turkey whom they resemble in many ways.

FLIGHT

Forest officers were impressed repeatedly by the magnificient mastery of flight displayed by the condor while at Sisquoc Falls. The effortless ease in which it soared in widening circles from a treetop or other perch until, when the required elevation was reached and the right air-current found, it straightened out in a dead-line and was away out of sight in a very short time.

While it has been held that condors will fold their wings and drop like a stone for several hundred feet, this has not been observed. Birds of prey use such methods frequently, but none of us have seen this happen when watching condors. They follow a leader apparently, but use no distinctive flight formation.

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This unusually strong wing is perhaps the most beautiful of any bird. The writer remembers very clearly an experience with Ranger McCormick in 1936 at Big Pine Mountain. We had ridden along the crest of the divide against a strong wind--stopped for lunch under the lee of some high rocks. Afterward while lying down and watching some small clouds go sailing by, whipped by the wind, a shadow swiftly crossed my eyes. It was a condor. We lay still and presently three birds poised above us, their long necks twisting to see what we were. They were so close that we could see their large black eyes, count the prominent wing primaries, and note the color of the feet and legs. The white underwing converts appeared as a broad triangular-shaped band on the older birds, extending from the body to the outer edge of the wing and vertically about one-half the size of the wing. This is not usually so distinctive in the female and the white is often flecked with light brown feathers.

The force of the wind was terrific on top of a sheer crestline, at an elevation of 8,000 feet, yet the birds had perfect control of their flight at all times. The action of the broad tail feathers was noted -- a twist down or to the right or left, and the immediate response in direction. There was almost no evident wing movement.

The upward curve of the distinct primary wing feathers is interesting when seen from the rear. They look very odd--like stiff brushes that remain stationary. There is a decided copper-colored sheen to the breast feathers. It is possible the head coloring may indicate age or maturity.

Reports from lookouts in the Monterey District show some interesting notes regarding flights.

"July 10, 1938, 11:35-11:50 a.m., Santa Lucia Lookout, Monterey District. One condor, estimated 7½ or 8 ft. wing spread. Direction of flight from Northwest to Southeast. This bird circled lookout and surrounding country for about 15 minutes, was very close once. I called Cone Peak to verify my description, to make sure it was a condor." -- Don F. Hood. Later Cone Peak lookout reported the time when this particular bird passed - computing the distance and the time of the flight showed a speed of 55 miles per hour.

"July 13, 1938, 11:05-11:10 a.m., Santa Lucia Lookout. One condor approximately 8 ft. wing spread. Southeast to west. Flew in from southeast to lookout; then turned toward Anderson Peak. I noticed his extreme speed in flight, as without moving a wing he flew from here and dropped over coast ridge. Distance about 9 miles. Estimated speed of 65-70 miles per hour."-- Don F. Hood.

"July 17, 1938, 5:45 p.m., Santa Lucia Lookout. One large condor and one slightly smaller. Direction of flight southeast to northwest. They were playing or fighting just south of lookout at the time, It reminded me of a couple of aeroplanes maneuvering. This is the only time I have seen them move their wings. They appear to fly into a strong wind just as easily as with it and just as fast."-- Don F. Hood.

Group flying seems rare and while numbers may circle, yet there is no direct mass formation or movement as with waterfowl and other birds.

An interesting experience in August 1937 gave an idea of the rate of speed while flying. Driving along the Cuyama road (State Route #166) a condor was noticed flying parallel to the road at about 2,000 feet elevation. Luckily the road was straight east for about six miles, and so we paced each other nicely at 45 miles per hour for nearly four miles before a turn in the road changed my direction. The condor gradually forged ahead and when I stopped to check up and make notes he was well in the lead. His speed seemed to be between 50 and 55 miles per hour.

At no time did the bird flap its wings, but sailed majestically along on an "even keel". The wind velocity was about 15 to 20 miles per hour on the ground, with a direction from east to west..

PROTECTIVE MEASURES

For several years Forest officers were rapidly becoming more aware of the ultimate need of permanent protection of condor in the Sisquoc Falls environment. The meager protection afforded by the State law covering non-game birds was the only defense against a curious but harmful public. State game wardens are much too few to watch for violations in this back-country area. While isolated indeed, it is in one of the best locations for deer and the threat of disturbance by hunters is constantly growing. A survey was made during 1936 of sufficient territory to place the Sisquoc Falls and its immediate area under more positive protection. We could not, of course, expect to take in the distant feeding grounds of this particular colony, but only the portion used for roosting, perching and nesting. The necessary data were assembled and submitted to Washington and in 1937, upon recommendation of the Forest Service, 1200 acres were set aside as a sanctuary by the Secretary of Agriculture under Forest Service Regulation T-9-I. The area was adequately posted and all use prohibited. Forest officers were instructed to promptly enforce the Federal regulation and the publicity was given out accordingly. Periodic examinations show no attempt by the public to trespass inside the posted boundary.

It is believed that the Hopper Mountain area is also a very important breeding and nesting ground, but investigations, which would serve as a basis for further action, have not been completed.

CONCLUSIONS ON DISTRIBUTION

With the system of lookouts strategically located throughout the National Forest from Monterey County south to Los Angeles County, it was obvious that the scope of bird life observations could be improved. A simple form was made in 1935 to be used by all lookoutmen on Los Padres and also sent to the Angeles National Forest that joins on the south.

During the last few years the entire forest fire lookout system of the U. S. Forest Service , the State and counties in southern California has been organized to observe these birds. These men are regularly employed for the summer period to watch for and report fires. Seldom does

the flight of a condor in their vicinity escape observation. Their effectiveness is indicated by the fact that in war games when these lookouts have acted as listening and observation posts in cooperation with the defending forces, the lookout system has not only reported the approach of all planes in the vicinity, but has enabled the defenders to plot accurately the course and speed of the attacking ships.

The lookout reports on the condor have been sent directly to the writer and it is felt that there are now few secrets in respect to its range and flight. (Maps I and II). Not only the lookout but all Forest officers have been greatly interested in the condors. It has been part of their administrative duties to gather information about these birds and to assist others who have at heart the preservation of this rare and remarkable species. We have also been able to supplement this extensively by information from interested stockmen and ranchers. The writer personally never lost an opportunity to ask questions of old residents of Monterey and San Luis Obispo counties, in an effort to find the dates when condors seemed most common. In this, however, one is so often disappointed as few people seemed to be able to remember anything that could be regarded as positive proof or indeed reasonable information. As with other rare or vanishing species, residents have given limited attention to written records of this unusual member of California's bird population.

To quote in part from a letter written by D. E. Scarbery, San Diego County Range Examiner for Agricultural Adjustment Administration, dated July 20, 1938:

> "In keeping with your request of last year that you be informed of definite appearances of condors, I am passing on the following information which seems to be authentic: 'Mr. Jack C. Adams informs me that he has twice sighted an adult condor in the vicinity of Rincon in the season of 1938'."

The following information is from the writer's notes for July 7, 1937:

> "1. Mr. Howard Jack of the Chalame Rancho, San Luis Obispo County, reports that in August 1922 four condors were seen on the ranch. One was shot by a local deer hunter. No condors have been seen to the best of his knowledge since this date in that part of the country. This information is substantiated by a conversation with riders and other stockmen on the Chalone Cattle Company's holdings, which adjoin Mr. Jack's ranch on the south.
>
> "2. Mr. Robert E. Griffin, now employed as Range Examiner for Agricultural Adjustment Administration, tells me that at the Peach Tree Ranch in Monterey County, about 35 miles east of King City, four condors were seen in 1925. Mr. Griffin had quite a number of sheep on the ranch at that time and one of his herders shot a condor in the belief that it was a big eagle. Mr. Griffin informs me that as far as he knows no condors have been seen in the Peach Tree country since 1925.

"3. Several oil workers at Maricopa and around McKittrick report that in 1926 and 1927 condors were fairly numerous. Several were killed by wading into pools of oil in the belief that it was water. Oil workers at both points do not report seeing any of the birds except on very rare occasions to date.

"4. Ranger Durbrow, of the Mt. Pinos District of this Forest, reports that, according to maintenance crews of the Southern California Edison Company, eight condors had been seen quite recently close to Highway #99 in Tejon Pass.

"I believe that some very good reliable data could be secured from the Tejon Ranch as there are several of the old-time employees at the ranch headquarters. I have in mind also two large cattle outfits at Walker Basin and in the Antelope Valley who might give some interesting facts. Also we have good contacts in Hollister and as far north as Salinas which would prove well worthwhile. From what I can learn, it is quite obvious that the zone of activities for the condor is continually becoming more restricted. This seems to be borne out by the fragmentary information available."

The following is quoted from a memorandum of District Ranger Longacre at Corona, California:

"The Santiago Lookout reports that a California Condor was sighted September 25 at the head of Indian Canyon. He also reports one having been seen on November 18. On December 5 he reported seeing one condor at noon and two later in the afternoon. Forest Guard Benedict also reported seeing a condor in the same vicinity, and yesterday W. E. Pequegnat, a graduate student of University of California Los Angeles, who is making a wildlife study in this area, informed me that a pair of condors had established themselves in the vicinity of Trabuco Peak on the district."

An elderly lady, living at "Condors' Roost" near Julian, said her husband used to speak of the condors around Julian and Warners Spring in 1900, but since his death she had lost interest and her sons had never noticed the birds. The cattlemen talked with around Oak Grove and Aguanga were vague as to dates, but all agreed on the fact that condors had once been fairly common.

We can safely extend our flight-zone map of known extremes in California from Santa Lucia Peak of this Forest in Monterey County, south to Santiago Peak in Orange County in the Cleveland National Forest, east to Mt. Josephine on the Angeles National Forest. They may be rarely observed eastward to the Sequoia National Forest, as several birds have been reliably reported in vicinity of Piute Mt, and farther north to Springville. On other rare occasions they may be seen northward to Santa Clara County and southerly to San Diego County.

According to Assistant Regional Forester F. P. Cronemiller, who visited Lower California in 1937, there were probably no more than two birds left in the Sierra San Pedro Martir at that time. They were, however, reliably reported in larger but unknown numbers south of Rosario.

(over)

According to Los Padres annual report, the total number of condors resident on this Forest was estimated on December 31, 1938 at between 55 and 60. We are fairly safe in giving this number and also estimating that of this total there are about ten immature birds varying from one to three years old.

It is doubtful if there is any migration or change in numbers except perhaps during nesting and then only a change perhaps in population between the two major concentration points--Mission Pine, Sisquoc in Santa Barbara County and Whiteacre-Hopper Mountain area in Ventura County.

SUMMARY

There is grave danger of extinction because of the peculiar habits and characteristics of the birds themselves. Mating for life, never a prolific breeder, laying but one egg, the fledgling remaining helpless for so long a time within the nest, their size that calls for space and accessible landing place, and return to the same nesting place--these are a few of the natural hazards. Shooting and egg stealing are now perhaps the greatest risks, with disturbance always a serious contributing factor. Publicity is of doubtful value. Indeed, it is questionable if the conservative support by some newspapers and magazines has not been offset by others that called attention to the value of an egg and the bird's rarity, thus spurring on the curiosity and cupidity of those who care little for the preservation of the condor.

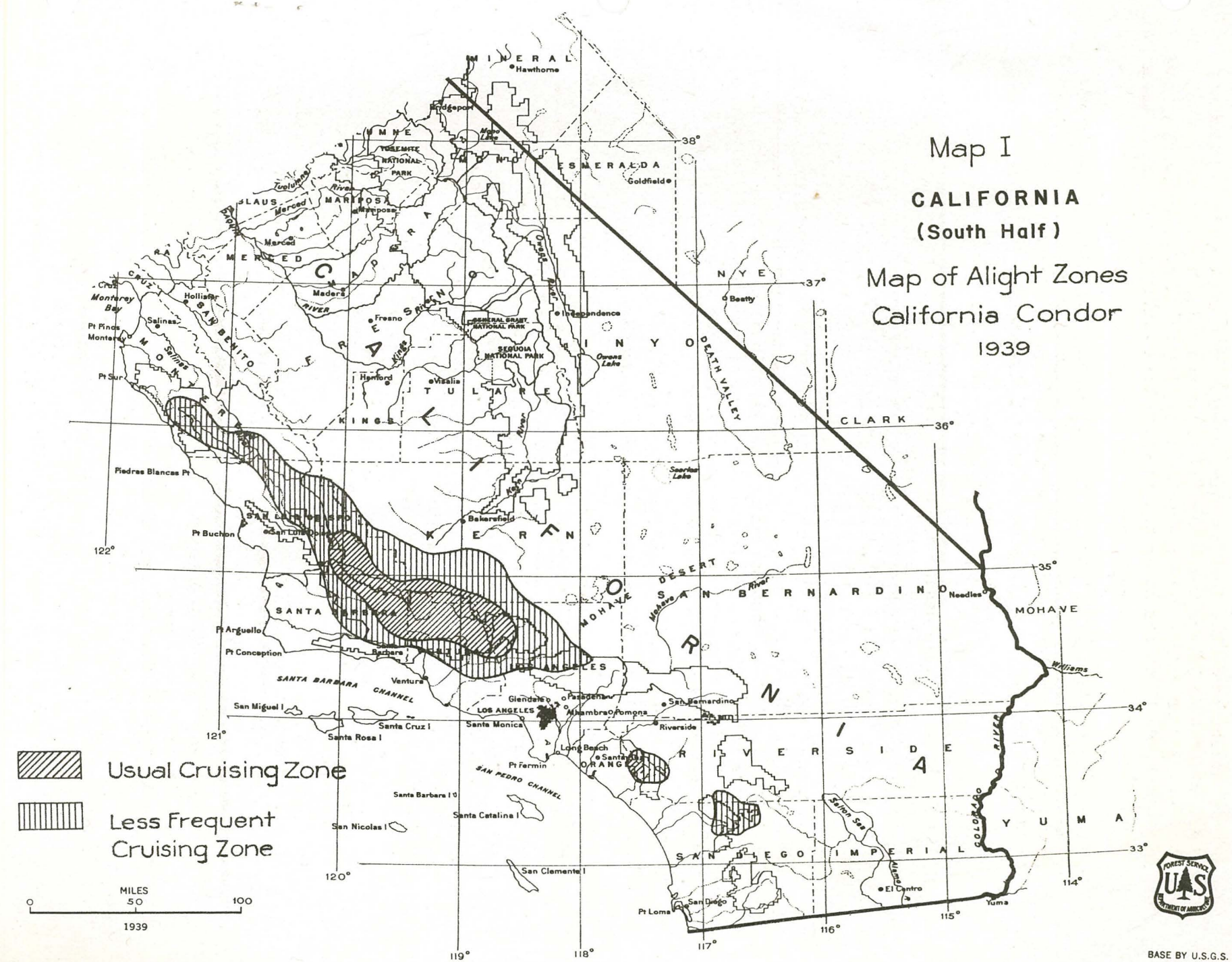
Great fires, that would kill by asphyxiation and gases or destroy the young, are always a potential danger on forests of this type.

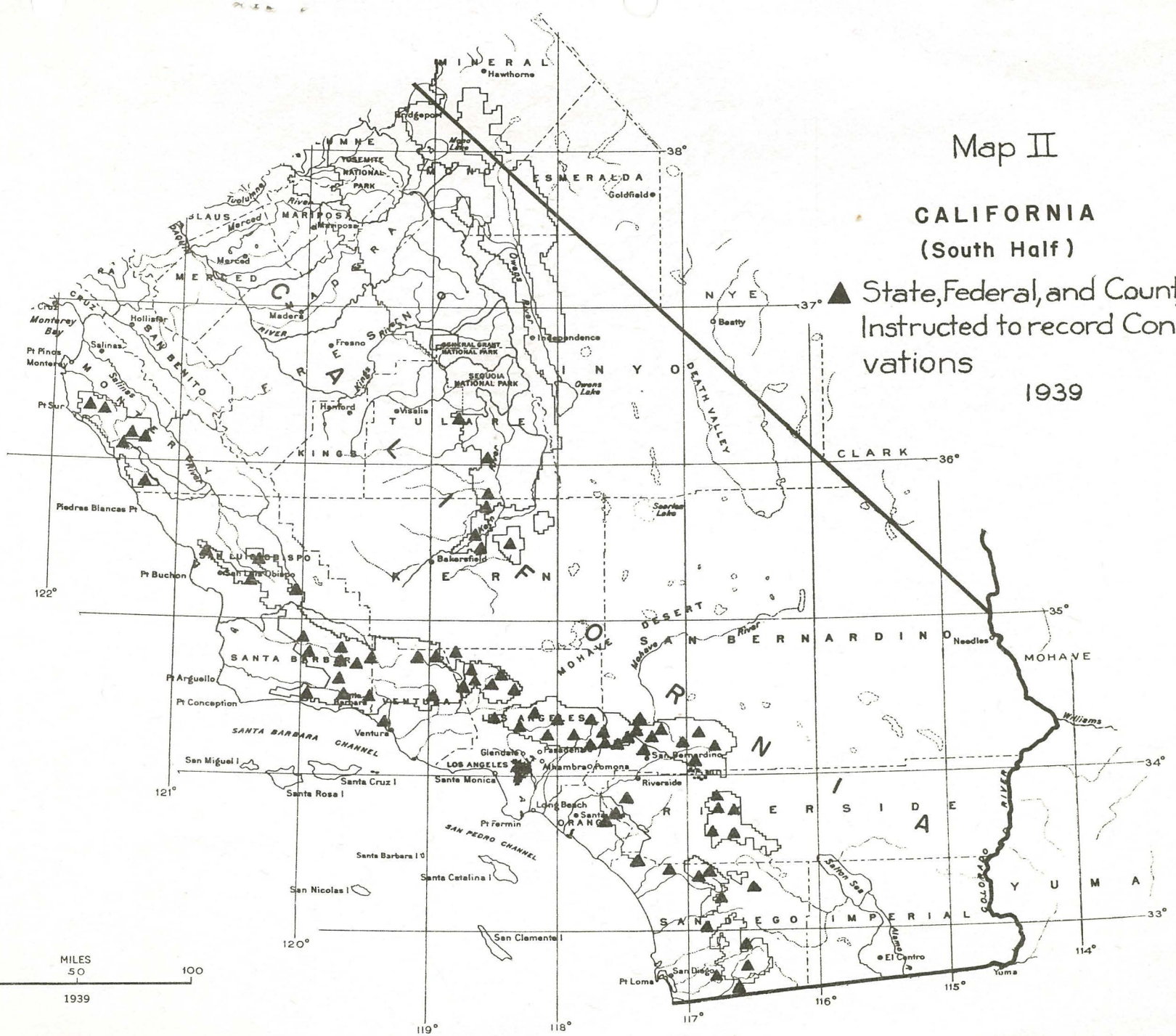
How to assure survival? With opportunity to collect and analyze facts, none of the problems surrounding the question are insurmountable. Food that is within reasonable distance and also within a zone of safety so that the birds can remain nearby is perhaps the most important.

The struggle for existence is further sharpened by the civilized disposal of carrion. No longer are huge herds of cattle or sheep a common sight, and the type of livestock grazed today is much too valuable to be carelessly handled, so losses are held to a minimum.

It is to native wildlife, therefore, that the condor must now turn for the bulk of his meat. Deer, fortunately, are fairly numerous and given a reasonable chance of survival will maintain themselves. The occasional carcass of a furbearing animal--a rabbit or ground squirrel--is insufficient for a bird of this size. Supplemental feeding may have to be considered if the conditions warrant.

Comprehensive study of any subject within such a huge area is an arduous task. This is one of the reasons that the progress has been slow. Moreover, to accomplish a really satisfactory account of the status of the California Condor, very much more time and study are essential.


Map I
CALIFORNIA
(South Half)
Map of Alight Zones
California Condor
1939
Usual Cruising Zone
Less Frequent Cruising Zone
MILES
0
50
100
1939
BASE BY U.S.G.S.
MINERAL
Hawthorne
ESMERALDA
Goldfield
NYE
Beatty
CLARK
MOHAVE
Needles
Williams
INYO
Death Valley
Owens Lake
Independence
MARIPOSA
Mariposa
MERCED
Merced
Yosemite National Park
Tuolumne River
Merced River
Madera
Fresno
San Joaquin River
General Grant National Park
Sequoia National Park
Kings River
Hanford
Visalia
TULARE
KINGS
Kern River
Bakersfield
KERN
Searles Lake
Mojave River
Mojave Desert
SAN BERNARDINO
Riverside
Colorado River
YUMA
IMPERIAL
SAN DIEGO
Salton Sea
El Centro
Yuma
San Diego
Pt Loma
ORANGE
Santa Ana
Long Beach
Pasadena
Glendale
Alhambra
Pomona
San Bernardino
LOS ANGELES
Santa Monica
Ventura
Santa Barbara
SANTA BARBARA
Pt Conception
Pt Arguello
Pt Buchon
San Luis Obispo
Piedras Blancas Pt
Monterey Bay
Pt Pinos
Monterey
Pt Sur
Salinas
Hollister
San Benito
Cruz
SANTA CRUZ
MONTEREY
SAN LUIS OBISPO
Coast Ranges
Sierra Nevada
Santa Barbara Channel
San Pedro Channel
San Miguel I
Santa Rosa I
Santa Cruz I
Santa Barbara I
Santa Catalina I
San Nicolas I
San Clemente I
Pt Fermin
120°
119°
118°
117°
116°
115°
114°
122°
121°
38°
37°
36°
35°
34°
33°


Map II
CALIFORNIA
(South Half)
▲ State, Federal, and County Lookouts Instructed to record Condor Observations
1939
MINERAL
Hawthorne
Bridgeport
Mono Lake
TUOLUMNE
YOSEMITE NATIONAL PARK
ESMERALDA
Goldfield
Tuolumne River
Merced River
MARIPOSA
Mariposa
MERCED
Merced
Owens River
NYE
Beatty
Madera
Fresno
Independence
GENERAL GRANT NATIONAL PARK
SEQUOIA NATIONAL PARK
Owens Lake
INYO
DEATH VALLEY
Hanford
Visalia
TULARE
KINGS
CLARK
Piedras Blancas Pt
Searles Lake
Bakersfield
KERN
Pt Buchon
San Luis Obispo
SANTA BARBARA
Pt Arguello
Pt Conception
Santa Barbara
VENTURA
Ventura
SANTA BARBARA CHANNEL
LOS ANGELES
Glendale
Pasadena
San Bernardino
San Miguel I
Santa Cruz I
Santa Monica
Alhambra
Pomona
Riverside
Santa Rosa I
Long Beach
Santa Ana
ORANGE
Pt Fermin
SAN PEDRO CHANNEL
Santa Barbara I
Santa Catalina I
San Nicolas I
San Clemente I
Pt Loma
San Diego
El Centro
Yuma
SAN DIEGO
IMPERIAL
Salton Sea
Mojave River
MOHAVE DESERT
SAN BERNARDINO
Needles
MOHAVE
Williams
RIVERSIDE
Colorado River
YUMA
MILES
0 50 100
1939
BASE BY U.S.G.S.